Aluminum 1050-O

Categories: Metal; Nonferrous Metal; Aluminum Alloy; 1000 Series Aluminum

Material Notes: Data points with the AA note have been provided by the Aluminum Association, Inc. and are NOT FOR DESIGN.

Composition Notes:
The aluminum content for unalloyed aluminum not made by a refining process is the difference between 100.00 percent and the sum of all other analyzed metallic elements present in amounts of 0.010 percent of more each, expressed to the second decimal before determining the sum. For alloys and unalloyed aluminum not made by a refining process, when the specified maximum limit is 0.XX, an observed value or a calculated value greater than 0.005 but less than 0.010% is rounded off and shown as " less than 0.01%".
Composition information provided by the Aluminum Association and is not for design.

Key Words: Aluminium 1050-O; UNS A91050; NF A5 (France); DIN Al99.5; AA1050-O, ASTM B491; BS 1B (UK); CSA 9950 (Canada); ASTM B491; Al1050-O

Vendors: No vendors are listed for this material. Please click here if you are a supplier and would like information on how to add your listing to this material.

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Physical Properties	Metric	English	Comments
Density	2.705 g/cc	0.09772 lb/in³	AA; Typical
Mechanical Properties	**Metric**	**English**	**Comments**
Hardness, Brinell	21	21	500 kg load with 10 mm ball. Calculated value.
Tensile Strength, Ultimate	76.0 MPa	11000 psi	
Tensile Strength, Yield	28.0 MPa	4060 psi	
Elongation at Break	39 % @Thickness 1.60 mm	39 % @Thickness 0.0630 in	In 5 cm
Tensile Modulus	69.0 GPa	10000 ksi	Compressive Modulus is about 2% higher
Poissons Ratio	0.33	0.33	
Shear Modulus	26.0 GPa	3770 ksi	Estimated from similar Al alloys.
Shear Strength	51.0 MPa	7400 psi	Calculated value.
Electrical Properties	**Metric**	**English**	**Comments**
Electrical Resistivity	0.00000281 ohm-cm	0.00000281 ohm-cm	
Thermal Properties	**Metric**	**English**	**Comments**
Heat of Fusion	390 J/g	168 BTU/lb	
CTE, linear	21.8 µm/m-°C @Temperature -50.0 - 20.0 °C	12.1 µin/in-°F @Temperature -58.0 - 68.0 °F	
	23.6 µm/m-°C @Temperature 20.0 - 100 °C	13.1 µin/in-°F @Temperature 68.0 - 212 °F	
	24.5 µm/m-°C @Temperature 20.0 - 200 °C	13.6 µin/in-°F @Temperature 68.0 - 392 °F	
	25.5 µm/m-°C @Temperature 20.0 - 300 °C	14.2 µin/in-°F @Temperature 68.0 - 572 °F	
Specific Heat Capacity	0.900 J/g-°C	0.215 BTU/lb-°F	
Thermal Conductivity	231 W/m-K	1600 BTU-in/hr-ft²-°F	
Melting Point	646 - 657 °C	1190 - 1210 °F	
Solidus	646 °C	1190 °F	
Liquidus	657 °C	1210 °F	
Component Elements Properties	**Metric**	**English**	**Comments**
Aluminum, Al	>= 99.50 %	>= 99.50 %	Specified
Copper, Cu	<= 0.05 %	<= 0.05 %	
Iron, Fe	<= 0.40 %	<= 0.40 %	
Magnesium, Mg	<= 0.05 %	<= 0.05 %	
Manganese, Mn	<= 0.05 %	<= 0.05 %	
Other, each	<= 0.03 %	<= 0.03 %	
Silicon, Si	<= 0.25 %	<= 0.25 %	
Titanium, Ti	<= 0.03 %	<= 0.03 %	
Vanadium, V	<= 0.05 %	<= 0.05 %	
Zinc, Zn	<= 0.05 %	<= 0.05 %	

References for this datasheet.

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